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Bioengineered Nanoparticles and their Role in Drug Delivery

Asha Singh^{1,2}, Rajesh Singh Tomar¹, Sangeeta Shukla²

¹Amity Institute of Biotechnology, Amity University Madhya Pradesh

²UNESCO- Trace Element Satellite Centre, School of Studies in Zoology, Jiwaji University, Gwalior (M.P.) India

Email:asingh@gwa.amity.edu

Nanotechnology plays a significant role in the development of current research. Green synthesis of nanoparticles is gaining more importance owing to its simplicity, rapid rate of synthesis, attractive and diverse morphologies, elimination of elaborate maintenance of cell cultures and eco-friendliness. Employing plants towards synthesis of nanoparticles are emerging as advantageous compared to microbes with the presence of broad variability of bio-molecules in plants can act as capping and reducing agents and thus increases the rate of reduction and stabilization of nanoparticles. Nanoparticles have a wide range applications in biomedical such as drug and gene delivery, biosensor, cancer treatment and diagnostic tool. Drug delivery systems have an important role to play in the administration of drugs, vaccines, and diagnostic agents. Delivery of the drugs can be achieved using various types of dosage forms including tablets, capsules, creams, ointments, liquids, aerosols, injections, and suppositories. However, for these novel delivery methods to succeed and compete with those already on the market, the prime issues that require consideration include device design and safety, efficacy, ease of handling, and cost-effectiveness. This work provides a detail of the next generation of active delivery technologies.

Keywords: Green synthesis, Nanoparticles, Drug Delivery, Medicinal Plant